DOCUMENT RESUME

ED 433 791 HE 032 341

AUTHOR	Perkins, George; Pitter, Gita Wijesinghe; Howat, Claudia; Whitfield, Duane
TITLE	Relationship of Financial Aid, Work and College Performance. AIR 1999 Annual Forum Paper.
PUB DATE	1999-06-02
NOTE	23p.; Paper presented at the Annual Forum of the Association for Institutional Research (39th, Seattle, WA, May 30-June 3, 1999).
PUB TYPE	Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Academic Achievement; Age Differences; Demography; *Grade Point Average; Higher Education; Nontraditional Students; Performance; *Student Employment; *Student Financial Aid; Time to Degree
IDENTIFIERS	*AIR Forum; *Course Load; State University System of Florida

ABSTRACT

This study of the State University System of Florida examined the relationship of demographic factors and college performance to various types and amounts of financial aid, student employment rates, and earnings of employed students. The state's unemployment insurance wage records were used to identify employed students, the university's financial aid database and student course files were used to identify demographic data, financial aid status, and student grades. The study found that high levels of financial aid and low rates of employment were associated with higher course loads. Among students of traditional college age, high levels of financial aid and low rates of employment were also associated with higher grade point averages. In general, women tended to have higher rates of employment and financial aid than men. Generally, students who were not employed had higher GPAs than employed students. Younger students had a wider range of average GPAs than older students. Overall, the percentage of financial aid recipients by class level decreased from freshman to senior level and the percentage employed increased. Results suggest that inadequate aid, which leads to higher employment rates, is likely to decrease credit hours taken per semester and thus lengthen the time to degree. (DB)

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Relationship of Financial Aid, Work and College Performance

George Perkins
Associate Director, Planning & Policy Analysis
State University System of Florida

Gita Wijesinghe Pitter
Director, Program Authorization
State University System of Florida

Claudia Howat
Coordinator, Academic & Student Affairs
State University of Florida

Duane Whitfield
Director, Florida Education and Training Placement
Information Program

Paper presented at the 39th Annual Forum of the Association for Institutional Research
June 2, 1999

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AIR
for Management Research, Policy Analysis, and Planning

This paper was presented at the Thirty-Ninth Annual Forum of the Association for Institutional Research held in Seattle, Washington, May 30-June 3, 1999.
This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of AIR Forum Papers.

Dolores Vura
Editor
Air Forum Publications

Relationship of Financial Aid, Work and College Performance

Abstract

Debate surrounding financing college, student indebtedness, and the impact of work on college has been lively in recent years. The profile of students attending college and how they pay for college continues to change. The paper reports on a systemwide study involving the various types and amounts of financial aid, employment rates and earnings of students found employed using the state's unemployment insurance wage records. Their relationships to various demographic data and college performance at the institutions in a large state university system will be examined.

Relationship of Financial Aid, Work and College Performance

INTRODUCTION AND PERSPECTIVES

The past three decades have brought significant changes in the profile of undergraduate students and how they finance their college education. The amount of loans, the proportion of merit versus need- based aid available, and the extent to which students work while pursuing their post-secondary education are significantly different now than in the 1970's. The percent of traditional college aged students (ages 18 to 24) who worked while attending college full time rose from 34% to 47% in 1988 (US Department of Education, 1997). A study published by the US Department of Education, National Center for Educational Statistics (NCES) in 1998 found that 79% (four out of five) of all undergraduates in 1995-96 worked while attending college. Financial aid trends have changed too. A decade a go, according to the college Board, 45% of the federal student aid was in the form of loans. At present the percent of federal aid which is in the form of loans has increased to 60%. As the federal government is the source of over 70% of direct aid to postsecondary students, this shift in federal policy from grants to loans has had a major impact on student debt. An additional concern is while federal aid has increased by about 80% in constant dollars over the past decade (two-thirds of the increase being in loans), the aid per full-time equivalent (FTE) student has not kept up with tuition increases. In the wake of these changing trends, questions regarding financial aid policies and the effect of working while attending college have been topics of debate in higher education. This paper will examine several facets of financial aid, work, and their relationship to college performance among all undergraduates attending universities in the State University System (SUS) of Florida in Fall 1997.

PURPOSE

The purpose of the paper is to examine financial aid, work, and the relationship between them and performance in college, utilizing data from the State University System of Florida (SUS) and other statewide administrative data bases. The study will explore various types of financial aid received by students, amount of awards, employment, earnings, and college performance during a given semester. The relationship to various demographic variables such as year in college (freshman, sophomore, junior or senior), age, race and gender will also be examined. The results of the study should be useful in formulation of policies by the state, and provide information that will be helpful to higher education institutions in other states as well.

DATA SOURCES

The data source utilized for financial aid (including work-study) was the SUS financial aid database. The SUS Student Data Course File was the source of information on student performance during Fall 1997, which was the semester selected for the study. Demographic data were gleaned from these two databases. The SUS files contain information for all ten universities within the system. Information regarding employment and wages for students enrolled during Fall 1997 was extracted primarily from
the State Unemployment Insurance Wage database for the fourth financial quarter in 1997 (October – December 1997). Individuals included in this database account for approximately 96% of all those employed in the state.

METHODOLOGY

Undergraduate student records from the data sources mentioned above were matched to provide a detailed snapshot of the undergraduates enrolled in the SUS for Fall 1997. Following an initial examination of the entire population of undergraduates, it was determined that limiting the cohort to undergraduates aged 18 to 44 years old, excluding non-resident aliens and unclassified students, would capture the most typical undergraduate population that receives financial aid. Employment data does not include college work study. The research questions examined in the study included the following:

- What proportion of students received various types of financial aid (need-based, merit based)?
- What was the average amount received?
- Were there differences in financial aid received associated with the demographic variables of race/ethnicity, gender, age, year in college?
- Were there differences in work rates depending on the demographic variables of race/ethnicity, gender, age, and year in college?
- What was the relationship between financial aid and work? For example, did students with higher financial aid awards tend to have lower work rates?
- What was the relationship between financial aid, work and number of credit hours completed within the semester?
- What was the financial aid and work profile of students with the highest GPAs? What was the relationship between financial aid, work and semester GPA?
- Was there a difference in college performance between: a) Those who received financial aid and those who did not? b) Those who worked and those who did not?

Descriptive statistics and regression analyses were used to explore these questions.

RESULTS

Population

The population of 18-44 year old undergraduates enrolled in the SUS in Fall 1997, excluding unclassified students and non-resident aliens (international students), consisted of 145,413 students. In spite of increasing numbers of nontraditional students enrolling in the system, particularly in the urban universities, 18-24 year old students constituted 75 % of the entire cohort.

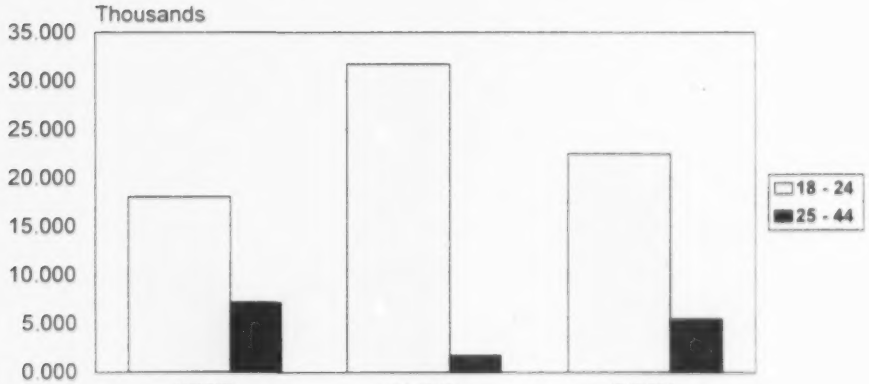
Type Of Financial Aid Received

Within the population examined, 62% of the students had some type of financial aid. By comparison, NCES reports that in 1995-96, 49.7% of students received financial aid. Aid for the cohort examined in the present study was broken out by need-based and merit-based. Some students received either merit or need-based financial aid only, while others receive both merit and need-based. The single largest category of aid received by students was merit-based only. Twenty-three percent of the entire cohort fell into this category. The next largest category was that of students who received both merit and need-based financial aid (21%). A mere 17% of the students received only need-based financial aid. It appears that the most likely means of receiving financial aid was being able to demonstrate good grades and test scores. It is relevant to note that in1997, the Florida legislature restructured the State's merit-based financial aid, combining and expanding previous aid to create the Bright Futures Scholarship program, which is funded by State lottery monies.

As a result, the State funding for non-need-based aid programs increased by $20.4 million in 1997-98, compared to the previous year. Over 40,000 scholarships were awarded to eligible postsecondary students in Florida in 1997 (PEPC, 1999).

Examining the cohort by age groups produced some interesting differences. Ninety-five percent of the students who received only merit aid were 18-24 years old. This age group also accounted for 73 % of all students who received both merit and need based aid. The breakout of types of aid within the 18-24 year old students differed somewhat from the corresponding breakout of aid among 25 - 44 year old students. Figure 1 provides the data on type of aid received by the two age groups.

Figure 1
NUMBER OF STUDENTS RECEIVING FINANCIAL AID BY AGE GROUPS FALL 1997



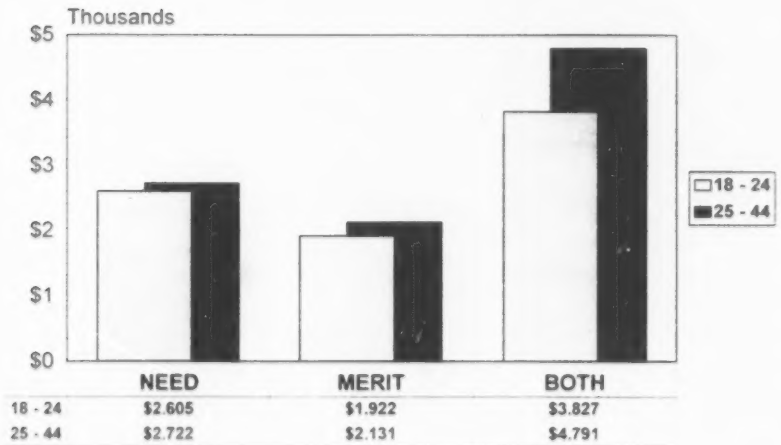
	NEED	MERIT	BOTH
18 - 24	18.028	31.750	22.508
25 - 44	7.200	1.742	5.471

Students who were 25-44 years old and had only need-based awards, or both merit and need-based awards, had a higher mean and median amount of financial aid than 18-24 year old students in the same categories. This probably reflects a higher level of need among the older

age group who may have families dependent on them. However, in merit-based awards, the median award for 18-24 year old students was slightly higher than for the older age group, while the mean award amount was slightly higher for the older age group. As expected, the students with the highest average amounts of awards were those who received both merit and need-based aid.

Figure 2 illustrates the relationship between age group and merit and need-based award amounts. While more students receive merit-based awards than need-based awards, the average value of the merit-based awards is lower than need-based awards.

Figure 2
AVERAGE AMOUNT OF FINANCIAL AID RECEIVED
BY AGE GROUPS
FALL 1997



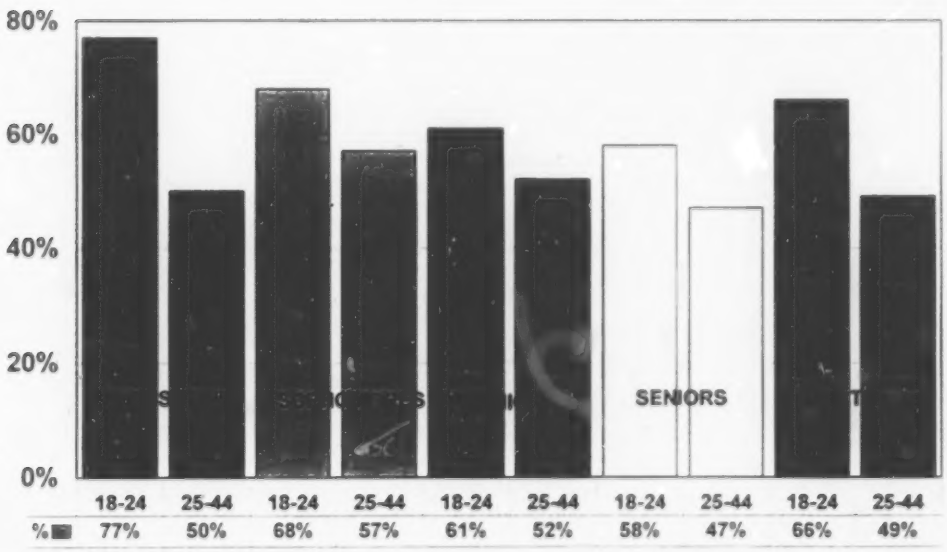
	NEED	MERIT	BOTH
18 - 24	$2.605	$1.922	$3.827
25 - 44	$2.722	$2.131	$4.791

Financial Aid by Class Level in College and Age

The group with the highest percent of students receiving some form of financial aid was 18-24 year old freshmen. Seventy-one percent of the students in this category received financial aid. However, they were also the group with the lowest mean and median amounts of aid: only

$1,984 median and $2,373 mean amount of aid. Among the 18-24 year old age group, the higher the student class level, the lower the percent of students with financial aid, reaching a low of 58% among seniors. The pattern for the average amount of aid received was the reverse of the percent receiving aid for the 18-24 age group. The higher the class level, the higher the average amount of aid (both mean and median) reaching a high of $3,054 in mean aid for the senior year. Among the older age group, the pattern for percent receiving aid was not as consistent. The highest percent of 25-44 year old students who received financial aid were those classified at the sophomore level; 57% of these students received financial aid. The lowest percent of 25-44 year old students receiving aid were those classified as seniors (47% received aid). In terms of the amount of financial aid received, a consistent pattern emerged among 25-44 year old students. As with 18-24 year old students, the higher the class level, the higher the financial aid amount received, reaching a mean of $3,762 in the senior year for the age group 25-44.

Figure 3
PERCENT OF STUDENTS RECEIVING FINANCIAL AID
BY LEVEL AND AGE GROUPS
FALL 1997

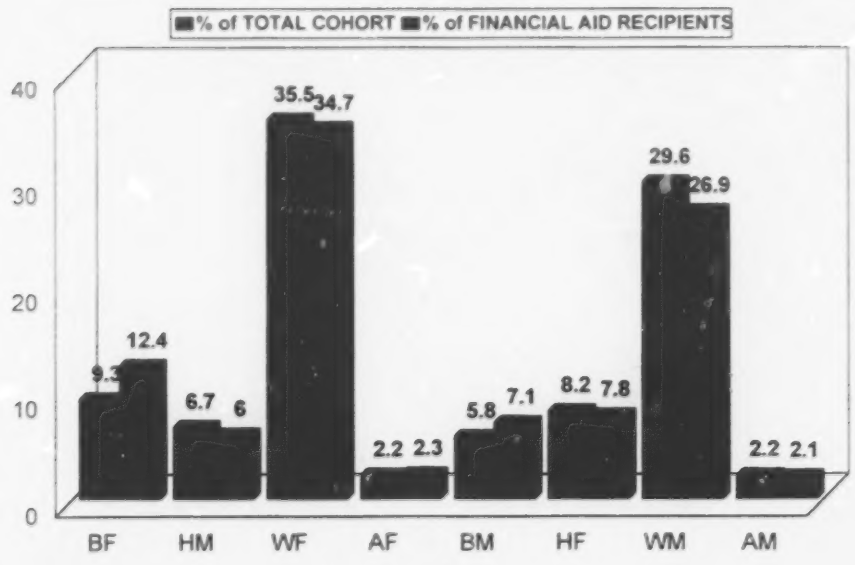


In examining the data by age in greater detail, the 18 and 19 year old students at all levels (freshmen through senior) emerged with a distinctive set of characteristics. A higher percent of them had financial aid but a lower average amount of award compared to 20-24 year old students. The pattern was less clear in considering the 18-44 age group. The highest percent of students receiving aid was 18-year-old sophomores: 92% of them received financial aid.

Financial Aid by Ethnic Group and Gender

When recipients of financial aid were categorized by gender and ethnicity, the highest number of students receiving some form of financial aid was White females who accounted for 35% of all awards. In comparison, White females accounted for 36% of the total student headcount. The lowest number of students receiving financial aid was Hispanic males, who accounted for 6% of all awards. By comparison, Hispanic males accounted for 7% of the total student headcount. Figure 4 provides the data on number and percents of recipients by gender and ethnicity.

Figure 4
PERCENT OF STUDENTS RECEIVING FINANCIAL AID BY GENDER AND ETHNIC CATEGORY FALL 1997



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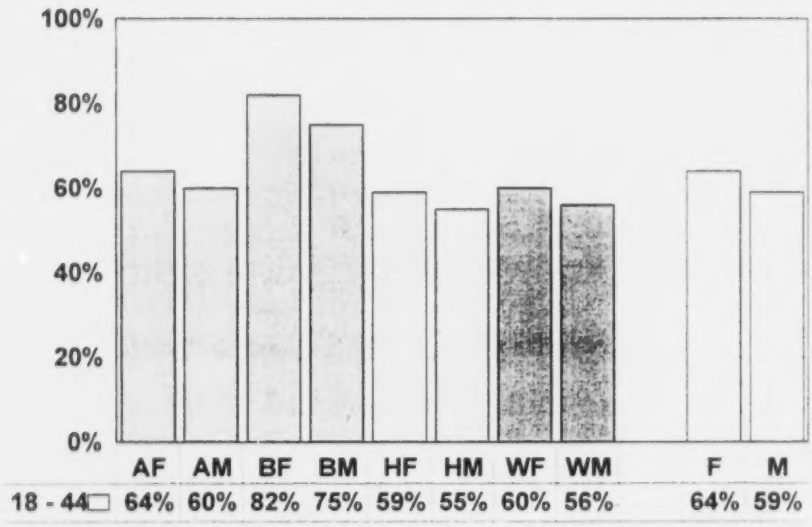
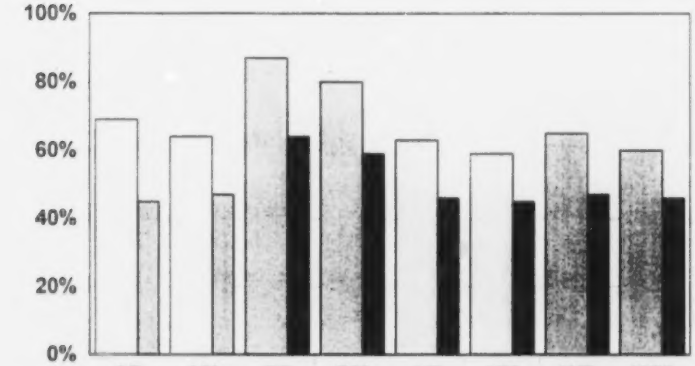
The data in Figure 5 answers the question "what percent of students in each gender and ethnicity category received any form of financial aid?" Black females had the highest percent receiving financial aid; 82% of Black female students received financial aid. The group with the least percent receiving financial aid was Hispanic males; only 55% of students classified as Hispanic males received financial aid.

Figure 5
PERCENT RECEIVING FINANCIAL AID
BY GENDER AND ETHNIC CATEGORY
FALL 1997



This pattern holds even when the data is broken out by age group, although the percent of students receiving aid changes.

Figure 6
PERCENT RECEIVING FINANCIAL AID
BY GENDER AND ETHNIC CATEGORY
FALL 1997



	AF	AM	BF	BM	HF	HM	WF	WM
18-24	69%	64%	87%	80%	63%	59%	65%	60%
25-44	45%	47%	64%	59%	46%	45%	47%	46%

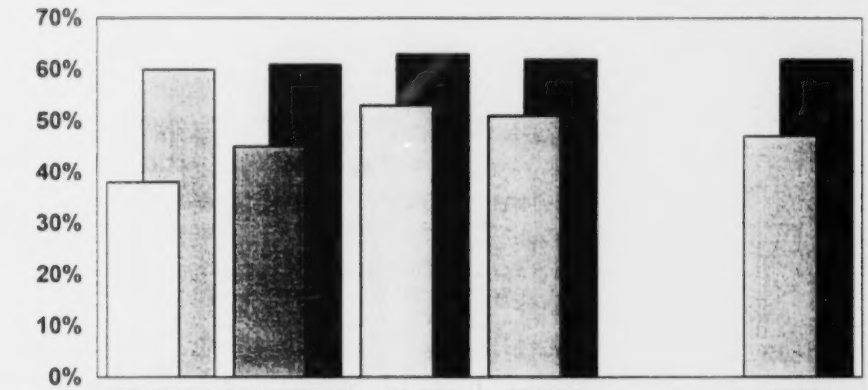
Inspecting the data by gender alone, women were more likely than men to receive financial aid. Women accounted for 55% of the total student headcount but received 58% of the awards. Sixty-four percent of the women and 59% of men received financial aid.

Employment Rates by Class Level and Age

In the total cohort, 51% of the students were found employed in Florida in Fall 1997. By comparison, a national study published in 1998 by NCES indicated that 79% of all undergraduates in 1995-96 worked while attending college. The difference may be due to the fact that the present study focused on university students while the NCES data probably includes community college students who typically have higher employment rates. Among freshmen, as expected, the higher the age of the students, the higher the rate of employment; only 38% of freshmen students in the 18-24 age category were found employed, while 60% of freshmen students in the 25-44 age category were found employed. Among younger (18-24) students, the percent that was employed increased for students at successively higher levels in college,

although there was a slight dip in employment in the senior year. The percent of older students (25-44) working, by comparison, remained fairly stable across the levels in college. Older students, many of whom attend college part-time while maintaining their labor market attachment, had higher employment rates and earnings than younger students did, as expected. Figure 7 provides the employment rates by class level and age group.

Figure 7
PERCENT EMPLOYED
BY AGE CATEGORY AND LEVEL
FALL 1997



	FRESHMEN	SOPHOMORES	JUNIORS	SENIORS	TOTAL
18-24	38%	45%	53%	51%	47%
25-44	60%	61%	63%	62%	62%

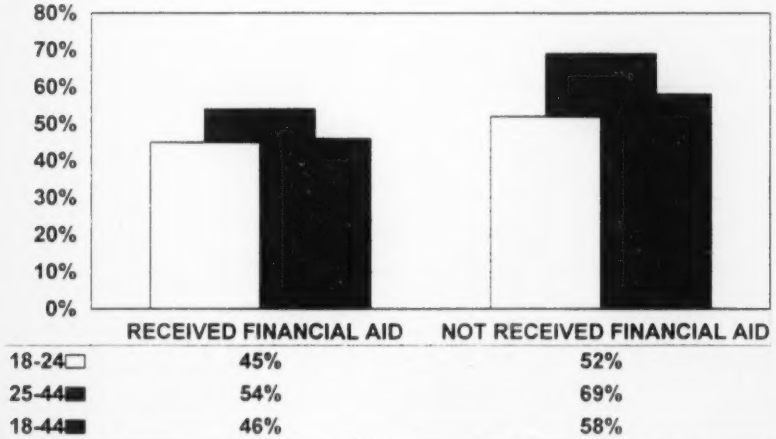
Examining the data in greater detail, by each single age, revealed some interesting information not revealed in the aggregate data by age group. Within the 18-24 year old category, the older the student, the higher the employment rate. However, in examining all ages 18-44 by class levels, i.e. freshmen, sophomores, juniors, and seniors, no clear a pattern of employment by age emerged. For example, 22-year-old sophomores had a higher employment rate (60%) than 32-year-old sophomores (47%). Students 18, 19, and 20 years old did have the lowest employment rates at all class levels (if considering age and level groups with 10 or more students), but the

remaining ages had varying rates of employment by class level. Students aged 18, 19 and 20 also had the lowest average earnings.

Employment Rates, Financial Aid and Age

There were differences in employment rates and wages between those who received financial aid and those who did not, although not as large a difference as one might expect. Among students who received any type of financial aid, 46% were found employed, with a mean quarterly wage of $1,953 for Fall 1997. By comparison, 58% of all students who received no financial aid were found employed, with a median quarterly wage of $3,954 during the Fall 1997 financial quarter. Figure 8 exhibits this data.

Figure 8
PERCENT WHO WORKED
FINANCIAL AID RECIPIENTS AND NON-RECIPIENTS
FALL 1997



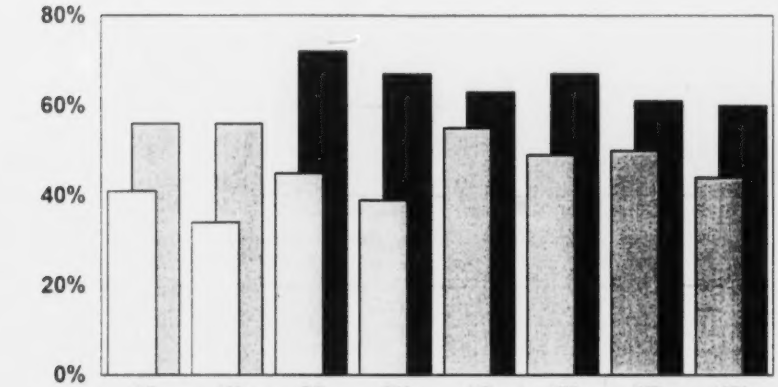
One might assume that students who received merit-based aid, but not need-based aid, had personal or family financial resources such as savings to draw upon. The data for the cohort indicate that 41% of students who received merit aid were also employed. Even among the traditional college age population aged 18-24 years, 40% of merit only recipients were found employed. Although receiving merit aid these students were supplementing their income with

earnings while attending college. By comparison, 53% of all students who received only need-based aid were found employed. Among 18-24 year old students, 51% who received need-based aid only were employed. Among the 25-44 year old students, a slightly higher percent of those who received merit aid were employed than those receiving need aid only (57% versus 55%). Students aged 18 and 19 years, at all levels (freshmen through senior) had the lowest percent employed and the highest percent receiving financial aid.

Employment Rates by Gender, Ethnicity, and Age

The highest rates of employment for all ages combined were those of Hispanic females. Fifty-seven percent of Hispanic females were found employed during Fall 1997, followed by Hispanic males (54%), White females (53%), Black females (51%), White males (48%) and Black males (46%). Breaking out the data into the two age groups, 18-24 and 25-44 produced some interesting differences. Figure 9 indicates the percent of students who had earned wages in Fall 1997, by gender and ethnicity for the two age groups. Hispanic females and White females headed the list, while Asians, White males, and Black males had the lowest employment rates in the 18-24 age group. In the 18-24 age category, the percent employed was higher for females than for males in each of the ethnic categories. In this age group, among those employed, Hispanics had the highest average earnings while Blacks had the lowest average earnings. The employment rates in the older age group exhibited a slightly different pattern. Black females, Hispanic males, and Black males (in that order) had high rates of employment among the 25-44 age group. Asians, in this age group too, had the lowest rates of employment.

Figure 9
PERCENT EMPLOYED
BY AGE, GENDER AND ETHNIC CATEGORIES
FALL 1997



	AF	AM	BF	BM	HF	HM	WF	WM
18-24	41%	34%	45%	39%	55%	49%	50%	44%
25-44	56%	56%	72%	67%	63%	67%	61%	60%

In comparing this data with data on financial aid, one finds that Hispanic males had the lowest percent receiving financial aid and a high percent with wages. Hispanic females also had a relatively low percent receiving financial aid, and a high percent receiving wages. In the 25-44 age group, Black females had the highest percent with financial aid and the highest percent with wages. Black males also had a high percent of financial aid and a high employment rate in that age group.

Black students received the highest average amount of financial aid in the 18-24 age category, while White students had the highest average amount of financial aid in the 25-44 age category, followed by Black students.

Credits Completed, Employment Rate and Financial Aid

College performance in terms of number of average credit hours completed in the semester was best for students who had financial aid and did not work. Students who had no financial aid and worked completed the fewest number of credit hours. Students who had both

merit and need-based financial aid had the highest average amount of aid and completed a higher number of credit hours than other students. Being awarded a higher amount of aid and not being employed appears to be related to completion of a higher course load. Figure10 exhibits these data.

Figure 10
AVERAGE GPA, AVERAGE CREDITS, AVERAGE FINANCIAL AID FOR THOSE WHO WORKED AND THOSE WHO DID NOT BY AGE AND TYPE OF FINANCIAL AID FALL 1997

	GPA	CREDITS	FIN AID	GPA	CREDITS	FIN AID
18-24						
MERIT	2.84	13.08	$1781	3.02	13.63	$2018
NEED	2.52	12.39	$2422	2.65	13.07	$2802
BOTH	2.64	13.09	$3618	2.81	13.65	$3995
NONE	2.53	11.13	$0	2.66	12.68	$0
25-44						
MERIT	2.90	10.45	$2055	3.09	11.64	$2231
NEED	2.80	10.41	$2483	2.97	11.77	$3010
BOTH	2.75	11.54	$4648	2.93	12.64	$4656
NONE	2.86	6.88	$0	2.98	8.99	$0

By ethnic group, Blacks aged 18-24 completed the highest number of credits for the semester. This may relate to the fact that a high percent of them received financial aid; in order to be eligible for many types of aid one generally must maintain a courseload of at least 12 credit hours per semester. Hispanics had the lowest number of credits completed and a high rate of employment. Asians aged 25-44 had an average percent who received financial aid, the lowest percent employed, low average earnings, fairly high number of credits completed, and fairly high GPAs for the semester, compared to other ethnic groups.

Financial Aid, Employment and GPA by Age

Students in the 25-44 age group who received merit aid only and did not work had the

highest mean and median average GPA. The profile of students with the lowest GPA's was 18-24 year old students who had need based financial aid only and were employed. In terms of course load, students aged 18-24 who were not employed and received financial aid tended to have the highest course load, while 25-44 year old students who had no financial aid and worked tended to have the lowest course load for Fall 1997 (see Table 10). In general, students who did not work in the financial quarter had higher average GPAs than those who worked. Even among merit scholarship recipients, those who were not employed had higher GPAs, on the average, than merit recipients who were employed.

Relationship between Employment and GPA

Among 18-24 year old students, there was a negative correlation between employment and GPA. A regression analysis indicated that for every $1000 earned, it lowered the student's GPA by 0.03 points. This finding was statistically significant at less than the .01 level. One might surmise that there might be a positive correlation between GPA and work, based on anecdotal evidence of highly motivated students who worked and earned high grades. However, the findings contradicted this assumption for the 18-24 age group. In contrast, among 25-44 year old students, a regression analysis indicated that there was a positive correlation between GPA and wages earned. For every $1,000 in aid, their GPA increased by 0.005 points. This was a statistically significant finding at less than the 0.01 level even when controlling for past academic performance. One should not assume that this is a causal relationship. In fact, the difference in relationship between GPA and wages between the two age groups probably reflects the difference in maturity and economic status between these two ages groups. That is, 18-24 year old students who are not employed probably are students with a history of good academic performance in high school who chose not to be employed while attending college. 25-44 year

old students who are not employed, on the other hand, may be individuals who were not well prepared academically at the outset, had difficulty finding well-paying employment, and are now returning to school in hopes of remedying that situation.

Relationship between Financial Aid and GPA

A regression analysis indicated that there was a positive correlation between financial aid and GPA for 18-24 year old students; for each $1,000 in aid, the GPA increased by .034 points. A subsequent regression indicated a positive correlation between merit aid and GPA, and a negative correlation between need-based aid and GPA. These were statistically significant findings at a level less than 0.01. A regression analysis of the 25-44 age group revealed a statistically significant negative correlation between financial aid and GPA. A subsequent regression indicated a negative correlation between need-based aid and GPA for this age group. Interestingly, the correlation between merit aid and GPA for this age group was not statistically significant. The difference between the age groups may be due to the fact that a relatively high percent of 18-24 year old students receiving aid were those receiving merit aid (75%), while 25-44 year old students tended to have a lower percent of merit based aid (59% of financial aid recipients received merit aid). The reason for the lack of significant correlation between merit aid and GPA for ages 25-44 may be an interesting issue for further study.

CONCLUSION

The findings of the study indicate that high levels of financial aid and low rates of employment were associated with higher course loads. Among students of traditional college age, i.e. 18-24 year-old students, high levels of financial aid and low rates of employment were also associated with higher GPA's for the semester examined. In general, women tended to have

higher rates of employment and financial aid than men. Among ethnic groups, Hispanics had the highest, and Asians the lowest, rates of employment. Black females had the greatest percentage receiving financial aid (82% were recipients of aid) while Hispanic males had the lowest percentage (55% were recipients of aid). Hispanics had the highest rates of employment.

Generally speaking, the youngest students (18 and 19 years old) had a high percentage receiving financial aid, a low amount of average aid, a low employment rate, and a low average earnings for those employed. They also completed the highest number of credits for the semester. This pattern held across all levels (freshmen through senior).

Younger students (18-24 years old) had a wider range of average GPA from freshmen to senior, than the older age group (25-44 years old). While the 18-24 year old students who are freshmen had a lower GPA than that of 25-44 year old students, their GPA increased steadily for each class level, and by the senior level their average GPA (both mean and median) was comparable to that of 25-44 year old students.

In the 18-24 age category, the percent of students receiving financial aid decreased with each successive class level, while the reverse was true for the percent of students in that age group who were employed, except for a slight dip in employment in the senior year.

There is a positive correlation between merit financial aid and GPA for 18-24 year-old students as well as between course load and GPA. It may be that the better students who have a higher GPA are taking higher course loads to maintain their financial aid. The data indicates that those who were not found employed had higher GPA's than those found employed. Stating what may be the obvious, the data imply that inadequate aid, which leads to higher employment rates, is likely to decrease the number of credit hours taken per semester and thus lengthen the time to degree. Shifting merit aid to need-based aid, in the belief that students who receive only merit

aid have no real need for aid, could result in even larger portions of academically high-performing students becoming employed while attending college, leading to lighter course loads and therefore taking a longer time to complete the degree. Providing adequate financial aid based on need alone is also important. Decreasing the employment rate of students who received need-based aid through adequate levels of aid would increase the likelihood of improving the GPA and time-to-degree of these students who tend to perform at a lower level than other students. The impact on GPA of higher numbers of students becoming employed due to lack of financial aid merits further study. Further examination of differences in financial aid patterns by ethnic group may reveal why some minority groups have a relatively low percentage of financial aid recipients, which may in turn lead to policy implications.

Overall, the percentage of financial aid recipients by class level decreases from freshmen to senior level (78%, 63%, 61%, 57%), and the percentage employed increases (39%, 50%, 53%, 54%). Women had higher GPAs, higher percent employed, and higher percent receiving financial aid.

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